WHAT IS CLAIMED IS:

1. A method of increasing anaerobic working capacity in a tissue comprising the following steps:

(a) providing a beta-alanylhistidine dipeptide and a glycine, an insulin, an insulin mimic, or an insulin-action modifier; and

(b) administering the beta-alanine and at least one of the glycine, insulin mimic, or insulin-action modifier to the tissue in an amount effective to increase beta-alanylhistidine dipeptide synthesis in the tissue, thereby increasing the anaerobic working capacity in the tissue.

2. A method of regulating hydronium ion concentrations in a tissue comprising the following steps:

(a) providing a beta-alanylhistidine dipeptide and a glycine, an insulin an insulin mimic, or an insulin-action modifier; and

(b) administering the beta-alanine and at least one of the glycine, insulin mimic, or insulin-action modifier to the tissue in an amount effective to increase the hydronium ion concentration in the tissue.

3. The method of claim 1, wherein the step of administering the beta-alanine and at least one of the glycine, insulin mimic, or insulin-action modifier to the tissue comprises oral administration, administration to a blood or blood plasma or a combination thereof.

4. The method of claim 1, wherein the beta-alanylhistidine dipeptide comprises a carnosine, an anserine, or a balenine.

5. A composition comprising a mixture of a glycine, an insulin, an insulin mimic or an insulin-action modifier, and a composition comprising an amino acid or an active derivative thereof selected from the group consisting of a beta-alanine, a chemical derivative of beta-alanine and a peptide comprising a beta-alanine.

6. The composition of claim 5, wherein the beta-alanine comprises a beta-alanylhistidine dipeptide.

7. The composition of claim 6, wherein the beta-alanylhistidine dipeptide comprises a carnosine, an anserine or a balenine.

8. The composition of claim 5, further comprising at least a creatine or a carbohydrate.

9. The composition of claim 5, wherein the insulin mimic comprises a D-pinitol (3-O-methyl-chiroinositol), a 4-hydroxy isoleucine, a demethyl-asterriquinone B-1 compound, an alpha lipoic acid, a R-alpha lipoic acid, a guanidiniopropionic acid, a vanadium compound, a vanadium complex or a synthetic phosphoinositolglycan peptide.

10. The composition of claim 5, wherein the insulin-action modifier is a sulphonylurea, a thiazolidinedione or a biguanide.

11. The composition of claim 5, wherein the composition is a pharmaceutical composition.

12. The composition of claim 5, wherein the composition is a dietary supplement or a sports drink.

13. The composition of claim 12, wherein the dietary supplement or sports drink is a supplement for humans.

14. A composition comprising at least 0.2, 0.3, 0.4, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 or 5 grams of a peptide or an ester comprising a beta-alanine.

15. A composition comprising at least 0.2, 0.3, 0.4, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 grams of a peptide or an ester comprising a beta-alanine in an injectable form.

16. The composition of claim 14 or claim 15, wherein the peptide comprises a beta-alanylhistidine dipeptide.

17. The composition of claim 16, wherein the beta-alanylhistidine dipeptide comprises a carnosine, an anserine or a balenine.

18. A composition for humans comprising at least 200, 250, 300, 450, 500, 550, 600, 650, 700, 750 or 800 mg of a beta-alanine.

19. The composition of claim 18, wherein the composition is formulated in an ingestible or an injectable formulation.

20. The composition of claim 19, wherein the ingestible formulation is a drink, a gel, a food or a tablet.

21. The composition of claim 18, wherein the peptide comprises a beta-alanylhistidine dipeptide.

22. The composition of claim 20, wherein the beta-alanylhistidine dipeptide comprises a carnosine, an anserine or a balenine.

23. A method of increasing the anaerobic working capacity of a tissue in a subject comprising the following steps:

(a) providing a composition comprising (i) a mixture of a glycine, an insulin, an insulin mimic or an insulin-action modifier, and a composition comprising an amino acid or an active derivative thereof selected from the group consisting of a beta-alanine, a chemical derivative of beta-alanine and a peptide comprising a beta-alanine; (ii) at least 0.5 gram of a peptide or an ester comprising a beta-alanine in an injectable form; or, (iii) at least 200 mg of a beta-alanine; and

(b) administering the composition to the subject in an amount effective to increase the anaerobic working capacity of the tissue.

24. The method of claim 23, wherein the total dosage of the beta-alanine for a 24-hour period is at least 0.2 gram.

25. The method of claim 23, wherein the total dosage of the beta-alanine for a 24-hour period is between about 0.2 gram and about 6.4 gram.

26. The method of claim 23, wherein the composition is given over a period of at least 3 days.

27. The method of claim 23, wherein the composition is given over a period of at least about 3 days to about two weeks.

28. The method of claim 23, wherein the beta-alanine comprises a beta-alanylhistidine dipeptide.

29. The method of claim 28, wherein the beta-alanylhistidine dipeptide comprises a carnosine, an anserine or a balenine.

30. The method of claim 28, where the total dosage of the beta-alanylhistidine dipeptide over a 24 hour period is at least about 0.5 gram.

31. The method of claim 30, where the total dosage of the beta-alanylhistidine dipeptide over a 24 hour period is greater than about 5 gram.

32. The method of claim 28, where the total dosage of the beta-alanylhistidine dipeptide over a 24 hour period is more than about 5 gram to about 16 gram.

33. The method of claim 28, where the total dosage of the beta-alanylhistidine dipeptide over a 24 hour period is at least 16 gram.

34. The method of claim 23, wherein the composition is administered in multiple doses.

35. The method of claim 34, wherein the composition is administered at least two times to eight times in a 24-hour period.

36. The method of claim 23, wherein about 200 mg of a beta-alanine or about 500 mg of carnosine is administered about two to eight times a day over a period of several weeks.

37. The method of claim 23, wherein at least about 2 g of a beta-alanine or at least about 5 g of carnosine is administered about two to eight times a day over a period of about two, three or four days.

38. The method of claim 23, wherein the amount of the composition administered is increased daily.

39. The method of claim 23, wherein the amount of the composition administered is increased weekly.

40. The method of claim 23, wherein the composition is administered in treatment periods that last for at least about four weeks.

41. A method of regulating hydronium ion concentration in tissue in a subject comprising the following steps:

(a) providing a composition comprising (i) a mixture of a glycine, an insulin, an insulin mimic or an insulin-action modifier, and a composition comprising an amino acid or an active derivative thereof selected from the group consisting of a beta-alanine, a

chemical derivative of beta-alanine and a peptide comprising a beta-alanine; (ii) at least 0.5 gram of a peptide or an ester comprising a beta-alanine in an injectable form; or, (iii) at least 200 mg of a beta-alanine; and

(b) administering the composition to the subject in an amount effective to regulate the hydronium ion concentration in the tissue.